S.8 Major Conclusions

Our analysis demonstrates that implementing the proposed action (to operate existing and new facilities for the safe treatment, storage, and disposal of solid radioactive wastes and to close those facilities) would not be expected to have adverse physical effects on populations using the Columbia River downstream of the Hanford Site. In addition, the disposal of solid waste would add only a small contribution to projected doses for people in the highly unlikely event that they were to drink from groundwater from various locations on the Hanford Site. However, while also highly unlikely, intruder and resident gardener scenarios incorporating the use of saunas or sweat lodges would result in doses at about 8,000 years hence that might be of concern. Mitigation plans, particularly those related to our long-term stewardship actions, including land-use covenants and active and passive institutional controls, would be used to prevent post-closure intrusion into the waste zones or groundwater resource for as long as needed into the future.

In general, the Proposed Action would potentially result in small, short-term public health and worker safety impacts due primarily to the transportation of waste, industrial accidents, and occupational exposure to radiation, regardless of alternative group chosen for implementation. Transportation impacts would be associated largely with non-radiological traffic accidents and vehicle emissions. Industrial accidents would depend for the most part on the volumes of waste to be handled. Occupational exposure to radiation would be well below permissible limits and would not result in any additional latent cancer fatalities. Impacts at the Hanford Site for the operational period are summarized in Table S.2. Impacts are compared in more detail among the alternatives in Section 3.4 and discussed in further detail in Section 5 and supporting appendixes.

Major Impact Differences Among the Alternatives

The No Action Alternative does not solve the issue of final disposition for many of the waste types, leaving large volumes in storage for the foreseeable future. Therefore, the obligation to dispose of these wastes would become the responsibility of some future generation. Moreover, the No Action Alternative results in the largest impacts for a number of the environmental resource categories. It uses the most land, the largest amount of non-renewable and geologic resources, and results in the largest occupational exposures and number of industrial accidents. In addition, by implementing the No Action Alternative we would be eventually precluded from meeting our compliance obligations.

Following the No Action Alternative, Alternative Group B generally has the next highest potential impacts among the alternative groups. As configured, Alternative Group B would be the action alternative with the largest land-use impacts. This is because this alternative group involves building new treatment facilities and using the existing (and less efficient) designs for disposal cells. Based on these considerations, Alternative Group B results in the highest impacts among the alternative groups in the non-renewable and geologic resources, air quality, worker dose, groundwater quality, and occupational exposure categories. One off-setting benefit of Alternative Group B is a reduction in transportation impacts, because some MLLW would be sent only to a nearby treatment plant.

Alternative Groups A and C have more efficient designs for the individual disposal cells (for both LLW and MLLW) and both would use a combination of existing onsite facilities (including a modified

T Plant) and offsite capabilities for the treatment of waste. These alternative groups have noticeably reduced impacts in a number of the environmental consequences categories over Alternative Group B. Thus, the use of existing onsite and offsite treatment capabilities appears to be preferred over the construction of new facilities, as is the use of improved design disposal cells.

Alternative Groups D and E were configured to evaluate the potential impacts and benefits associated with multi-use disposal facilities. In Alternative Group D, we looked at a single, multi-use disposal facility for all Hanford solid waste types (LLW, MLLW, ILAW, and melters). In Alternative Group E, we considered two multi-use disposal facilities, one for LLW and MLLW and another for ILAW and melters. The waste treatment approach for these alternative groups would be the same as in Alternative Groups A and C. In general, these alternative groups have noticeably reduced impacts, in a number of the environmental consequences categories, over Alternative Groups A, B, and C. Within these two alternative groups we also examine the effect of different locations of the multi-use disposal facility(s). The differences in impacts among Alternative Groups D and E and their subgroups would be minor. Thus, the use of multi-use facilities also appears to be preferred over those designed for individual waste streams.

DOE Preferred Alternative

Based on the results of the environmental consequences analyses, cost, and other considerations, we have identified a preferred alternative for the HSW EIS. The preferred alternative consists of those actions identified in Alternative Group D for waste quantities up to the Upper Bound waste volumes, in addition to the use of modular facilities for the processing and certification of TRU waste, as follows:

Storage: The Central Waste Complex would continue as our primary storage facility for LLW, MLLW, and TRU waste. The storage of retrievably stored TRU waste in the Low Level Burial Grounds would continue until retrieval operations are complete.

Treatment: LLW and MLLW would be treated using a combination of existing capabilities and processes, offsite commercial capabilities, and a modified T Plant. TRU waste would be processed and certified using a combination of the Waste Receiving and Processing Facility, a modified T Plant, and the modular facilities.

Disposal: LLW, MLLW, ILAW, and melters would be disposed of in a new modular facility. This new disposal facility would include a RCRA-compliant liner and a leachate collection system and upon closure would be capped with the modified RCRA Subtitle C cover. Existing Low Level Burial Grounds would be similarly capped. These existing Low Level Burial Grounds would continue to be used pending start of the new disposal facility.

In general, alternatives outlined in Alternative Groups D and E would be the most environmentally preferable, operationally efficient, and marginally cost-effective. The differences in impacts between Alternative Groups D and E and their respective subgroups would be minor. However, Alternative Group D appears to offer a combination of low environmental impacts and low cost. Waste disposal operations would be combined in a single location that could provide a more efficient regulatory pathway to construction and operation.

Areas of Controversy

We acknowledge that areas of controversy exist regarding the Proposed Action and the analyses in the HSW EIS. Areas of controversy were identified during the public interaction processes. We are not able to resolve many of these issues because they reflect either differing points of view or uncertainties in predicting the future. However, we have considered these areas in the development of this revised draft of the HSW EIS. Issues raised by the public are addressed in the Comment Response Document, Volume III.

Receipt of Offsite Waste: There are differing points of view about the importation of waste to Hanford from offsite locations and the impact that waste would have on the environment. In order to clearly communicate the incremental impacts of receiving offsite waste, we analyzed three different waste volumes, Hanford Only, Lower Bound, and Upper Bound.

Modeling Uncertainties and Evaluation of Long-Term Performance: There are differing points of view regarding the ability to predict groundwater impacts and long-term performance for performance behaviors and the use of computer models for accurately predicting groundwater and human health impacts raise questions about our ability to accurately predict impacts far into the future. We present long-term impacts using the best available methodologies and conservative assumptions, and we identify the uncertainties associated with our models. Some disagreement also exists with our use of conservative assumptions, which could lead to higher modeled groundwater concentrations than would actually occur, potentially masking differences among the alternatives. DOE believes that the analyses in this EIS are reasonable for purposes of evaluating potential impacts from alternatives.

Transportation: There are differing points of view regarding previous transportation analyses conducted as part of the Waste Management Programmatic EIS and the desire by members of the public to have the transportation impacts reanalyzed as part of the HSW EIS. Although an analysis of nation-wide transportation of wastes to Hanford from other DOE sites was not performed, the transportation impacts associated with those wastes in the states of Oregon and Washington were added to the revised draft.

Cumulative Impacts: There are differing points of view regarding how best to assess cumulative impacts on the Hanford Site. Because the Hanford Site cleanup is a technically complex and long-term program, with associated uncertainties both in terms of final cleanup end states and modeling techniques, cumulative impact analyses will necessarily contain those same uncertainties.

Technetium-99 Inventory in ILAW: There are differing points of view regarding the amount of technetium-99 to be included in the low-activity waste stream. The analysis performed in this revised HSW EIS assumed a maximum quantity of technetium-99 in the ILAW waste stream to provide a bounding level of analysis. Details of the analysis can be found in Section 5.3 and Appendix G. In addition, as indicated in Section 1.5.2, DOE is currently preparing a separate EIS that will evaluate alternative treatment processes for some tank waste and disposal of low-activity waste forms other than those considered in this HSW EIS.

Lines of Analysis: There are differing points of view about where groundwater impacts should be calculated. It has been suggested that analysis at the disposal facility boundaries is needed. The points of analyses used in the HSW EIS comparative assessment were located along lines approximately 1 kilometer downgradient from aggregate Hanford solid waste disposal facilities within the 200 East, 200 West, and the ERDF areas and near the Columbia River located downgradient from all disposal facilities. These points of analysis downgradient from the overall waste disposal facilities in each area are not meant to represent points of compliance but rather common locations to facilitate a more complete comparison of long-term impacts from various waste management configurations and locations defined for each alternative.

Land Use: There are differing points of view about actions on the Hanford Site that use additional land for waste management actions, particularly those actions not directly associated with Hanford cleanup operations.

Use of Area C Borrow Pit: There are differing points of view over the use of the Area C borrow pit for obtaining geological materials for construction of disposal facilities covers.

S.9 Public Interaction Process

This section provides a brief summary of our public interaction process that has led to the development of this revised draft of the HSW EIS.

Scoping Process

Initial Scoping for the HSW EIS: To determine the scope of the issues to be addressed in the HSW EIS, we issued a Notice of Intent to prepare an EIS in 1997. We requested comments and recommendations from interested parties on the range of actions, alternatives, and impacts we should consider and we held public scoping meetings. We received both oral and written comments. In response to these comments, along with DOE-wide decisions reflected in the WM PEIS Records of Decision, we restructured and revised some of our alternatives and projected waste volumes from those originally presented in the 1997 Notice of Intent for the HSW EIS. This scoping process and the other key events that have led to the preparation of the revised draft of this EIS are illustrated in Figure S.20.

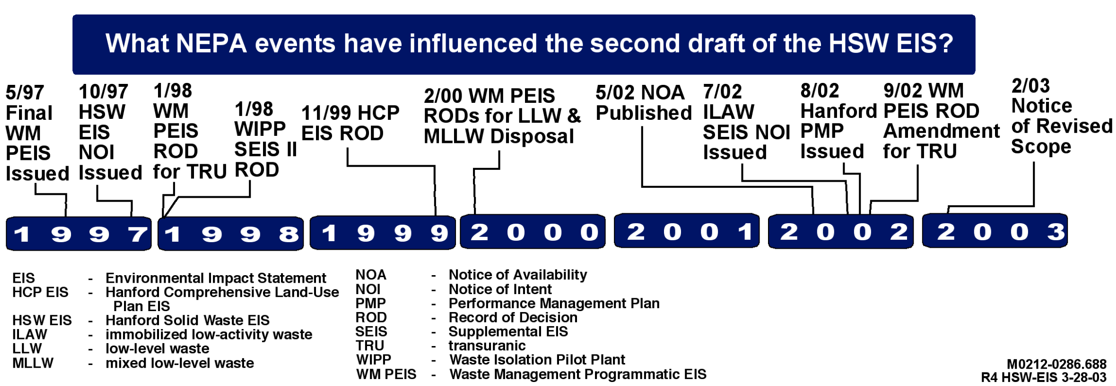

Figure S.20. HSW EIS Development Timeline